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**United States Patent** [19]

O'Halloran et al.

[11] **Patent Number:** 5,463,852[45] **Date of Patent:** Nov. 7, 1995[54] **WIDE CUT HARVESTER HAVING ROTARY CUTTER BED**[75] **Inventors:** Michael L. O'Halloran, Hesston; Cecil L. Case, Newton; Martin E. Pruitt, Hesston; David P. Fritz, Newton, all of Kans.[73] **Assignee:** Hay & Forage Industries, Hesston, Kans.[21] **Appl. No.:** 234,232[22] **Filed:** Apr. 28, 1994[51] **Int. Cl.<sup>6</sup>** ..... A01D 34/66[52] **U.S. Cl.** ..... 56/6; 56/13.9; 56/295; 56/192; 56/DIG. 6; 56/DIG. 11[58] **Field of Search** ..... 56/6, 13.5, 13.9, 56/15.1, 15.2, 15.5, 15.6, 16.4 R, 255, 295, 192, DIG. 1, DIG. 6, DIG. 9, DIG. 11, 10.2 H[56] **References Cited****U.S. PATENT DOCUMENTS**

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A harvester which uses a rotary style cutter bed has a series of rotary cutters extending across the path of travel of the machine and rotatable about individual upright axes. Part of the cutter bed is a flat gear case containing a train of intermeshed spur gears that serve to distribute power between the cutters above the gear train. Each end of the gear case has a hollow, gearless extension welded thereto which supports at least one additional outboard cutter that receives its driving power exteriorly of the gear case. One embodiment uses a mechanical drive to bring power to the upright shaft of the cutter having the first spur gear so that the cutters with gears receive all their power from the driven cutter. The outboard cutters not having gears are driven by exterior, over-the-top drive mechanism coupled with the shafts of the first and last geared cutters, such drive mechanism alternatively taking the form of timing belts with timing sheaves, chains and sprockets, gear box and universal joint couplings or a spur gear train. As an alternative to a mechanical drive, the cutter bar may utilize a pair of hydraulic motors coupled with the shafts of the first and last cutters having gears. All of the gears in the gear case remain positively enmeshed with one another in the gear train, so that the two hydraulic motors share the total load of driving the cutter bed and such loading is balanced between the two hydraulic motors, prolonging the useful life of the gears and other drive components. The added on, outboard cutters are driven over the top using timing belts, timing sheaves, universal couplings or a spur gear train.

**66 Claims, 10 Drawing Sheets**